

PUSH THE FRONTIERS OF LIFE SCIENCES – MICROSCOPY ACROSS SCALES.

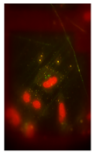
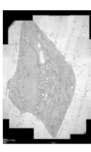
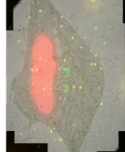
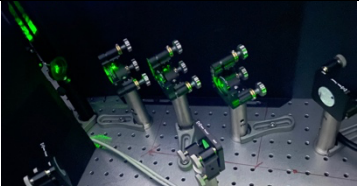
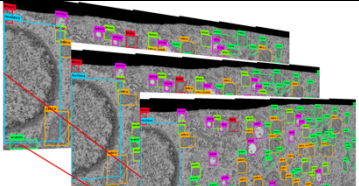
[The Group of Prof. Dr. Walter at the Centre of Optical Technologies \(ZOT\)](#) aims at developing novel correlative microscopy solutions to facilitate imaging across scales in life sciences. We plan to combine advanced fluorescence microscopy with electron microscopy to visualize molecules within their subcellular context at high resolution using Correlative Light and Electron Microscopy (CLEM). Specifically, we envision a worldwide unique advanced super-resolution and volume CLEM workflow under cryo-conditions (Correlative Cryo-Super-Resolution Light and Focused Ion Beam Scanning Electron Microscopy) that overcomes the current limitations, pushes correlative microscopy further and allows us, together with our collaboration partners, to tackle specific biomedical research questions that could not be answered before due to the lack of accessible solutions. This is a highly interdisciplinary project between physics, engineering, optics and life sciences, and we are looking for

3 FORSCHUNGSMASTER (1.5-2 years, part-time)

To help us tackle several biomedical showcase projects (from nanoplastics to cell infections) by building and applying novel CLEM techniques. The position will be paid according to your scientific and professional experience.

Key responsibilities

For the implementation of the project, according to your skill set and interests, you will either work on (1) **establishing the biomedical collaborations, confocal microscopy and first correlative workflows**, (2) **building a first cryo-super-resolution microscope** (Structured Illumination Microscopy), or (3) **establishing Focused Ion Beam Scanning Electron Microscopy (FIBSEM) for biological samples at Aalen University**. Your primary tasks will include:

  		
Forschungsmaster 1	Forschungsmaster 2	Forschungsmaster 3
<i>Biomedical Correlative Workflows</i>	<i>Cryo-Super-Resolution Microscopy</i>	<i>FIBSEM For Biological Samples</i>
<ul style="list-style-type: none"> • Cell Culture 	<ul style="list-style-type: none"> • Building SIM microscope at room temperature 	<ul style="list-style-type: none"> • Sample Preparation at room temperature
<ul style="list-style-type: none"> • Commissioning of the Confocal Microscope 	<ul style="list-style-type: none"> • Hardware control 	<ul style="list-style-type: none"> • FIBSEM data acquisition at few nanometer resolution
<ul style="list-style-type: none"> • Reference Dataset: Confocal Microscopy 	<ul style="list-style-type: none"> • Software: Image processing 	<ul style="list-style-type: none"> • Optimization of acquisition protocols for biosamples
<ul style="list-style-type: none"> • Adaption of sample carriers 	<ul style="list-style-type: none"> • Implementation at cryo-conditions (- 196 °C) 	<ul style="list-style-type: none"> • Application to biomedical research questions
<ul style="list-style-type: none"> • Micropatterning 	<ul style="list-style-type: none"> • Application to biomedical research questions 	<ul style="list-style-type: none"> • Correlative imaging using light & electron microscopy
<ul style="list-style-type: none"> • Image correlation/registration 	<ul style="list-style-type: none"> • Image analysis 	<ul style="list-style-type: none"> • Image analysis

How to apply

If you are interested in R&D in advanced microscopy with different radiation (from light to electrons), biophotonics, biomedicine, and image & data processing and want to help push the frontiers in cell biology, we look forward to receiving your application/CV. Please send to **Andreas Walter [andreas.walter@hs-aalen.de]** by **June 30th, 2022**. For further information about the position please contact Andreas Walter.